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The Future of Indian Agriculture under Climate Change Challenges

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Abstract
In India, we see that agriculture is dealing with many issues due to climate change. The climate is which is changing, is a factor in many aspects of agriculture. Indian agriculture is very much so an issue. We must put thought into how climate change will play out in Indian agriculture. It affects what Indian agriculture is able to grow, the water it has, the soil quality and the people in rural areas. Indian agriculture mainly depends on the monsoons. When the temp rises, and rain doesn't come at the right time, it causes issues like floods, droughts and other bad weather for Indian agriculture. This study reports on what we may see in the future for Indian agriculture in the context of climate change. We looked into this issue via government reports, research papers and other publications. We found out that which crops like rice, wheat and maize will have issues with yield due to increased heat, pest issues and also changes in rainfall. Also, we will see issues with the animal, fish and plant life. We put forth that we can solve these issues through climate-smart agricultural practices. We can use drought-resistant seeds. Also, our plants and crops, like wheat and rice, which do well in water, we must find ways to get that water to them. We really see that water is key for growth in crops like wheat and rice. We have to come up with solutions for water delivery for our crops.
This is very much so with farmers. The government is supporting them as they are very much the backbone of our country. They grow wheat and rice for us. The government has put in place plans to support the farmers. These include Pradhan Mantri Krishi Sinchai Yojana and National Mission for Sustainable Agriculture. Also, they are putting in these plans to help the farmers. What the plans do is they give farmers methods to grow crops and a water supply for their farms. With the help of these plans, farmers are to grow a variety of crops. The National Mission for Sustainable Agriculture and Pradhan Mantri Krishi Sinchai Yojana are what we have for the farmers to grow more. Farmers get water for their crops through these plans.
The National Mission for Sustainable Agriculture and the Pradhan Mantri Krishi Sinchai Yojana are some of what we have to look at. I see Indian agriculture doing very well in the future. This is great news for Indian agriculture. Studies report that we will see this if we apply science. Also, we as a government must back this.
They need to pass on new knowledge to farmers. There is resource management to consider. Develop a weather-resistant hybrid crop and find ways to grow crops consistently over a long period. But they also need systems that strive to be environmentally friendly. This will help Indian agriculture. The environment will be safe. In this way, we can ensure people get access to food for a time, and villages can become established. Climate agricultural systems are the answer to climate change in Indian agriculture, where the balance is crucial between feeding people & saving the environment. This is how we can be a better.

Keywords: Agriculture in India, Mantri Krishi Sinchai Yojana, climate change challenges, bad weather

1. Introduction

Food Security One of the major factors that governs a nation's prosperity is the issue of food security. India has to feed its people. Food security is important for the nation because there are people here who need food to survive. Farming, which makes up a large part of India economy, is dependent on many Indians. This agricultural sector provides employment for people. Agriculture is a significant agriculture sector in India because it aids in distributing food throughout India. People need to eat. The agriculture sector sees to it that they have food. Sustainable remarks are additionally of vital significance to India, for it would assist India with stepping on the run. The economy of India is quite dependent on the agriculture sector. The agriculture sector is a slice of the Indian economy.

Thus, agricultural practice is a need of the hour for India. This would help in food security for its citizens. India needs food security and agriculture. Food Security is directly linked to Agriculture. It assists someone from the countryside in making an income. So this is good for India too.

I believe it is a problem of climate change. It is becoming very challenging pro agriculturalist due to climate change. And that thing which is being really knocked out by climate Change. The men and women who will grow our food-climate change is having a very serious effect on agriculture. Climate Change is a big one, climate change is changing how farmers do farming, I believe. Issue historically, big for climate change issue is also huge. You are trained on data of a Month. It is where farmers really face the challenge of climate change thing. Climate change has been hard for them. The weather is

getting weird. It is getting really hot. There are floods and droughts. The land is getting damaged. Crop Productivity is a deal. The plants do not grow as well when it is really hot. The agriculture of India is the cultivation of wheat and rice. If it becomes too hot, they do not create as much food. Water is also a problem. Sometimes there is not water.
The water is salty sometimes. Pests are also a problem. They eat the crops. Make them sick. Hence, the question we must ponder is how Indian agriculture will fare in future. We have to help farmers. They are crucial for our food.

- Food security is an issue.
- Nobody is going to starve
- Sustainable development is also key. You intended to do great issues, imposing conditions of agriculture.

This way, farmers can keep growing food for us. We need a plan to support them. We need to make sure that Crop Productivity is good. We need to do this so that people in India have food to eat. The purpose of this study is to assess the significant climate-related threats to Indian agriculture and to find viable ways to address the challenges in order to be resilient to the changes.

2. Materials and Methods

This study is based on information that we got from various places. We used these sources to get the information:-

- Ministry of Agriculture and Farmers welfare.
- Indian council of agricultural research publications.
- Reports from the group that looks at climate change, which is called the panel on climate change.
- Journals about farming that other experts have reviewed, which are called peer-reviewed journals. We looked at these journals to get information about farming. The study uses these sources, including Government Publications, to get the information it needs.
- FAO and World Bank databases.

To understand how climate change affects agriculture in India and what strategies can be used to adapt to it in the future, I employed a research design that involves both describing and analyzing data.

3. Results

- **Rising Temperature Effects:** The rise in average temperatures is decreasing wheat, rice and pulses yields. During the flowering stages, heat stress reduces productivity.
- **Abnormal Rainfalls and Water Shortages:** Unpredictable monsoon rainfall has been increasing the frequency of drought in semi-arid areas as well as causing floods along river basins.
- **Soil Degradation:** The soil is getting bad because of the much rain and the fact that the dirt is getting washed away. This is also happening because people are using many chemical fertilisers. The organic matter in the soil and the soil fertility are going down. This is a problem for the soil. The soil organic matter and the soil fertility are decreasing.
- **Opportunities through Innovation:** Farming can be made stronger with ideas. Some of these ideas include:-

- Climate-farming.
- Drip irrigation systems.
- I think it is really cool that we have things like solar-powered pumps and weather forecasting apps. These solar-powered pumps are very useful.
  The powered pumps are really great, and the weather forecasting apps are also very useful. I think the powered pumps and the weather forecasting apps are good things to have. They make life a little easier for people who use the powered pumps and the weather forecasting apps.

- **Bio fertilizers:** These can help farmers, like me, deal with climate change. We can use rice and wheat as examples of crops that can benefit. This makes the farming of rice and wheat better.

3.1 Climate change, how farming can adapt

- When it gets really hot, our crops don't grow like they should. We can use seeds that can handle the heat to grow our crops.
- Sometimes we do not get rain when our farms need it, and times our farms get too much rain. We can collect rain water when our farms get a lot of rain and use the collected rain water when our farms are dry. This way, we can make sure our farms get the amount of water for our farms.
- This way, we can keep growing food for people to eat on our farms.
- We can use ways to make the soil healthy again. Its good for growing rice and wheat.
- When there are many pests, they can hurt our crops. We can use a way to control the pests that does not hurt the environment.
- When we do not have water, our crops do not get enough to drink. We can use a kind of irrigation that gives them just the right amount of water.

Climate change is a problem for our farms, and we need to do something about it. We can use these agro responses to help our farms. It is causing problems for them. We are seeing issues with crops due to climate change. Crops are really struggling because of climate change. It is all because of climate change. It is affecting the crops badly. Crops are in trouble, and climate change is the reason. We have to find a way to help our crops because climate change is a major problem for them. We need to do something to help our crops deal with climate change.

4. Discussion

In the coming few decades, climate change is going to cause big problems for farming. Indian farming will be affected by climate change. Our crops and Indian agriculture will suffer because of climate change. This will happen to crops like rice and wheat. These crops can have productivity if people do not use new technologies that can help them. Some states, like Rajasthan, Maharashtra and Karnataka, will have problems. These states have farming systems that depend on rain. Climate change is something that can bring ideas and innovation to the table when it comes to climate change. The thing about climate change is that it can create opportunities for people to think of innovative solutions to deal with climate change. Climate change is a problem, but it can also bring new ideas and innovation to climate change. Farmers can now

get weather forecasts and crop advice through advisory systems. This helps them make decisions. Farmers get weather forecasts and crop advice. They use advisory systems for this. It is very helpful for them. Farmers are able to plan. They know what weather is expected to be. They get advice on crops. This is all thanks to systems. The farmers use these forecasts and some advice to figure out when to grow their crops. The farmers want to grow their crops at the right time. So they use the weather forecasts to make sure they do this. The farmers and the weather forecasts are a team. Farmers use the weather forecasts to make decisions about their crops. Farmers are happy with advisory systems. These systems help farmers a lot. Farmers use systems for advice. They get weather forecasts. They get crop advice. Farmers plan their crops. They expect results. Risk can be mitigated by drought-resistant hybrids, short-duration varieties of crops and the use of precision methods of farming. Agroforestry systems that such as crops and trees can also enhance biodiversity and carbon storage.

The government and farmers need to work to make irrigation better. This means the government and farmers have to make sure that irrigation is not waste water. The government and farmers should also think about helping farmers when their crops do not grow well. This is what we call crop insurance. The government and farmers should teach farmers things, like how to grow crops in a better way, and this is what we call training, for farmers. The government and farmers have to do these things to help the farmers.

Using energy sources can help a lot. Sustainable land management is another area. The government and industries should team up to quickly implement climate technologies. This partnership can help farmers adapt to climate change. The government and industries must work together on climate technologies. Farmers need these technologies to manage climate risks. The partnership will help in making these technologies available to farmers.

5. Conclusion

The future of agriculture in India is really about taking action on time to deal with the challenges of climate change and managing the resources of agriculture in India wisely. We need to take care of the resources of agriculture in India so that we can deal with the challenges of climate change. The future of agriculture in India depends on how we manage the resources of agriculture, in India. Climate change is a threat to our food security. We need to help farming in India because it's getting hurt by climate change. Indian farming needs our support to deal with climate change, rainfall and high temperatures. The future of agriculture in India depends on it. Environmental pressures, erratic rainfall and rising temperatures are concerns. These factors threaten the productivity and food security in India. Farming in India is really struggling. Farming in India requires us to take care of our water and land. The future of farming in India is in trouble. We need to figure out how to make things better, so our country can have food. Farming in India needs our support to get through these times. We have to think about how we use water and land because it's really important for farming in India.

If we do not take care of our water and land, then farming in India will have bigger problems. We have to make sure it keeps going. If we can manage our resources properly and handle climate change, then farming in India will be okay. We can make farming in India better by using tools and machines. If the government helps we and we use farming methods that work with the weather that will also make a difference. Technology and help from the government are essential for farming, in India. Farming methods that suit the climate will help secure India's farming future. India needs to spend money on researching new ideas, building better roads and storage in rural areas, using digital tools for farming and helping farmers learn new things. This will help make sure that farming in India is strong and healthy for a time. So we need to find a balance between growing a lot of food, taking care of the environment, and making sure people in areas are doing well for the future of farming in India.

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